

INSTRUMENTATION FOR LAND SURFACE TEMPERATURE MEASUREMENTS

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Over the last several years, spaceborne instruments have been flown which image the Earth's surface in a few thermal **infrared** bands at a spectral **resolution** of about a kilometer or more. These include such instruments as **AVHRR** and **ATSR**. While these instruments have proved extremely useful for measurement of sea surface temperature, their utility over land is somewhat reduced because of the high spatial variability of land surfaces and the nonuniform spectral **emissivity** of the land surface materials. These factors combine to make an accurate determination of land temperatures difficult. However, in the next few years, **we** can anticipate new spaceborne instruments which will have several to many bands in this spectral region with much higher spatial resolution. These new instruments will allow much **more** accurate determination of surface spectral **emissivity** and **surface** temperature. One of the **first** of this new generation of thermal **infrared** imaging instruments will be **ASTER**. It is being built by **MITI** in Japan and is scheduled to fly on the NASA **EOS/AM1** platform in 1998. Other proposed instruments include the **MTI**, **PRISM**, **IRSUTE** and **Sacagawea**.

In addition to the spaceborne instruments, a number of new airborne instruments such as **MIVIS**, **MAS**, and **MASTER** are also becoming available, many as precursors to spaceborne instruments. These, combined with new field spectrometers such as those developed by Designs and Prototypes, and by Mydac now provide the remote sensing scientist with a broad suite of instruments for developing the use of this **spectral** region.

The next decade should prove to be an exciting one for thermal infrared remote sensing. We anticipate that the availability of data from the sensors discussed here will develop an ever-increasing demand for high spatial resolution **multispectral**, thermal infrared data.

Invited session: Surface **Temperatures**: Observations and Applications
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Preferred presentation: Oral